Spring/Summer 2011

CAMBRIDGE ARCHITECTURE

College Libraries

The end of the building boom

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Cambridge Association of Architects
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featuring:
Three new libraries
Reflections on the Central Library
Roof vault collapse averted at New Hall
Eight look at eight old and new Cambridge libraries

THE EDITORS

WHY LIBRARIES?

Since 1985, an average of one new or significantly extended library has been built each year by the University of Cambridge and its colleges. The former has significantly expanded the University Library and built new libraries for Law and Mathematics. The latter have competed to outdo each other with the latest and best student library. For colleges, a new or revitalised library has become a 'must have' (pp. 3 – 9).

There are many reasons for this – the need to accommodate more students and books, the desire to raise standards by providing better study space, the effort to attract the best possible applicants and so on. No less than 20 college libraries have been built or significantly expanded in the past 25 years. Plans for some others have so far come to nought.

It's a good time to take stock. Just as the public library is coming under pressure because of economic decline, so too, is the idea of further college library building. With fees and living costs rising and the University under immense pressure to increase its intake of students from poorer backgrounds, college resources and fund-raising look set to concentrate on students rather than buildings.

The key collegiate space

A recurring theme in recent library development has been the impact of digitisation. In the case of the books, the University and colleges have embraced the e-book system as a means of making the latest editions of course material available – and eliminating the need to purchase and store multiple hard copies.

In the case of readers, despite the ability to connect the now ubiquitous laptop anywhere, students are using college libraries as never before. There are many reasons for this – not least the herd instinct and the availability of formerly-banned coffee and other liquids in reading rooms. The old, traditionalist – liquid averse – librarians, of the time when attendance at college chapel and hall were compulsory and libraries little used, must be turning in their graves.

Chapel and hall are no longer compulsory and the college library is assuming an importance it never had. As it extends its functions to become the key collegiate space, so it hastens the process of making each college more self-sufficient, more an island unto itself. It is a process that began, arguably, with the transformation of the buttery hatch into the college bar as an alternative to city pubs.

MEANWHILE, IN THE CITY

The proposals for the market place (pp.10 – 11) will be swiftly rejected as impossible to implement without killing off the market itself. Such Spanish levels of civic urban ambition, it will be said, have no place here – Cambridge is no Cordoba. But why not set the bar high and work back from there? The suggestion for a new City Auditorium in the Guildhall is surely worth pursuing – if there is ever to be such a facility it would be nonsense to locate it on the periphery, away from existing conference infrastructure.

NEWS

BEST BUILDING – AND GARDEN

The winner of the 2010 David Urwin Award, announced this March, was much praised for its integration of buildings with landscape. The landscape architect was not identified in the City's press release. CAg sought him out.

The best new building to have been erected within Cambridge in the last four years was judged to be Trinity Hall's College residences at Wychfield on Storeys Way designed by Cambridge-based RH Partnership Architects. (*CAg* 56 pp. 4-5). The judges were 'particularly impressed by the thought that had gone into the landscaping of the area which complements the architecture, providing a good setting for the buildings and creates a pleasant environment to relax and work in.' Fulsome praise for the landscape architect – but who?

Douglas Rule of Cambridge Landscape Architects isn't too upset. 'I've mixed feelings about the lack of recognition but very proud to have been part of the group of architects that, on day one of the competition, stood on the virgin turf and decided how to approach the design. Because we worked so closely together over several years it's extremely difficult to differentiate our individual contributions.

'As a landscape architect, on many projects you achieve success by merging yourself with the rest of the design team. You have to nudge and influence every aspect of the project collaboratively. You'll get publicity for yourself if you work on schemes where landscape is the predominant element – such as public open spaces – but not in urban design and building projects. On this project, I regard the lack of recognition of the extent of my contribution as a sign of my success.'

Recognised as art

Unusually, the landscape investment in the project formed part of the 'percent for art' contribution required as a condition of planning consent: this in itself is recognition of the standard achieved. The detail planting design was by Rule's partner, the late Sarah Clayton (it was her last project). The planting itself was implemented by Trinity Hall head gardener, Andrew Myson and his team. Myson, described by Rule as 'the best in the business', sourced the plants, many of which were stored and 'grown-on' in a temporary nursery on the tennis courts well before the site was inhabited.

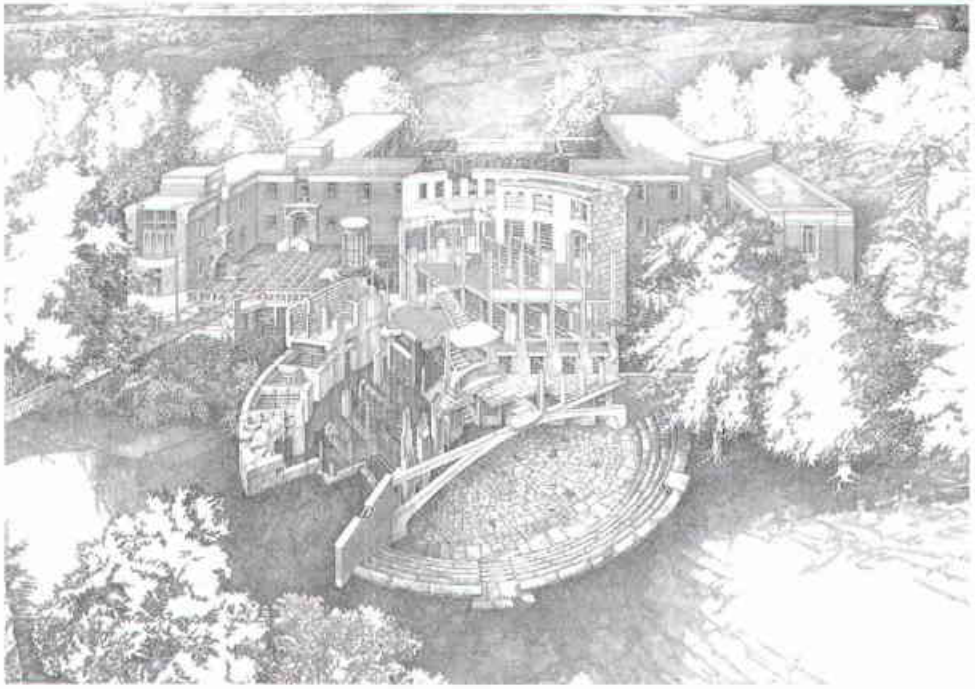
The project's architect, David Emond of RH Partnership said, 'We were delighted to work with Douglas on this project from the outset and gave proper recognition of his contribution in our submission for the award. It is good to see that this is now being more publicly acknowledged. The primary feature of the competition winning design was a varied series of garden spaces with the buildings arranged to create enclosure, define views and the complex hierarchy of public and private domains. This integrated approach creates a rich environment for students, fellows and visitors, not just buildings with a garden attached. The Green Lane allows the high-density scheme to retain a domestic character, preserving long views into the site from Storey's Way. The 3-sided courts use the existing trees to enclose the garden spaces. Architecture is just as much about the space around, between and under the buildings as the interiors and facades. Our initial competition entry was entitled a "garden community". Four years after completion the whole composition is settling in and is much loved by those who live and work there.'

'Landscape complementing architecture, a pleasant environment to live and work in' – Trinity Hall's Wychfield

The other members of the design and construction team were: services engineer Max Fordham LLP, structural engineer Whitby Bird, quantity surveyor Davis Langdon, detail architect LSI and contractor AMEC.

Runners-up

Commendations were awarded to the University of Cambridge's Sainsbury Laboratory in the Botanic Gardens, designed by Stanton Williams, and to the City of Cambridge's public conveniences, recycling facilities and office to let in Chesterton Road, designed by Freeland Rees Roberts.



1. One that got away – MacCormac Jamieson Prichard's 1988 proposal for King's College library, off West Road

LAST CHAPTER?

Over the past two-and-a-half decades Cambridge colleges have competed with each other to provide excellent library facilities. Peter Carolin looks back at the challenges faced by the colleges, librarians and architects.

The Cambridge library-building boom began just before computers proliferated. Initially, where provided for students, computers were generally located in a dedicated computer room somewhere in the college. The first new library to incorporate student computers was Darwin's (1992) and the debate on their location was won by those who wished to restrict them to a series of fully enclosed rooms, housing six students each.

Two years later, St John's adopted a halfway position. It was still the age of the desktop. The majority of computers were concentrated in a roof-top room and the remainder on a mezzanine overlooking the entrance hall. The former is still in use but laptops are now used throughout the building. Subsequent college libraries adopted a policy of dispersal, with internet connections (and now wi-fi) fairly liberally provided. Today, the laptop is ubiquitous.

Locating the library

If, twenty years ago, the location of computers dominated much of the discussion on library planning, the other debate has been on the location of libraries. For Darwin, there was just one viable site – the long abandoned vegetable garden at the extreme end of the College's long, riverine site. Further downstream, St John's decided that, rather than construct a new library at the far end of the College, beyond the Cripps building, it would gut an existing building adjacent to the existing 1624 library and abutting (and overlooking) the Master's fine garden. A decade later, Corpus Christi rejected a site at the edge of its Master's garden, broke the link with the great Parker Library and gutted a revenue-producing space elsewhere (pp. 6-7).

Some new libraries have been freestanding, as at Downing, with its four-square classical building by the College entrance *[2]*, and Lucy Cavendish, tucked-up against the trees abutting Madingley Road. Others, such as Trinity Hall and the new Fitzwilliam library sit at the end of ranges – the former acting as a significant element in the cityscape *[3]*, the latter, unseen from the street, 'completing' the College in a most happy way (pp. 4 – 5).

But the answer is not always a new building. In 1988, King's retreated from a proposal to build on its West Road site *[1]* and instead expanded within the space of Wilkins' 1828 library. Peterhouse expanded into yet another gallery of the old Museum of Classical Archaeology and Emmanuel have wrapped an extension around a 1960s extension to a 1909 building (pp. 8-9). Behind every siting decision lies a long – and sometimes robust – discussion on the options.

Demolition, repair and replacement

Perhaps the most astonishing recent library 'projects' relate to two 1960s libraries at Newnham and New Hall. Newnham's library (and its kitchen – by the same architect) suffered from over-tight design – a common characteristic in a period when architects were under enormous pressure to do more for less on the back of a relatively primitive construction industry. The College's 1960s building was demolished and a new section inserted in 2004.

What happened at New Hall was, however, completely unpremeditated – the library's 1960s Grade 2* vaulted roof started to collapse in 2001 (pp. 12-13). Its repair reflects great credit on the Cambridge-based architect and engineer and on the constructors involved. Here, the pressure was immediate and the need to innovate and bring to bear the highest level of construction skills was essential. It seems almost incredible that the library was kept in operation throughout.

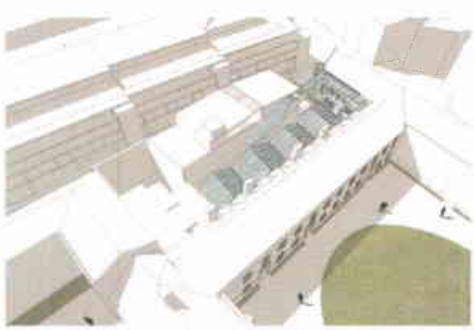
There is, as far as we know, one more College library project currently under active development – at Christ's *[cover and 4]*. As at Newnham, this will involve demolition of a 1960s building (sadly, by the same architect as at Newnham). The existing building has become functionally unsatisfactory and is built over disused bath facilities of the same period. The scheme has been submitted for planning approval.

A fine café – with a library attached

Just as accommodating computers was a major concern of the nineties so has the provision of coffee facilities become an obsession of the noughties. At University level, almost every new teaching and research building appears to have its own facilities – thus further discouraging inter-disciplinary intercourse on, for example, the highly dispersed West Cambridge site. Colleges are no different. Corpus' new student library was constructed with the College's new underground bar and party room conveniently adjacent. Christ's proposal will allow its coffee bar to extend into an extensive covered court overlooked by the library floors *[cover]*. St John's, without a library coffee bar, allows non-alcoholic drinks to be brought in. Will mini-cafés be the next challenge in college library design – or will the library-building boom have come to an end?

2. Downing College library, Quinlan Terry, architect

3. Trinity Hall library, Freeland Rees Roberts, archts



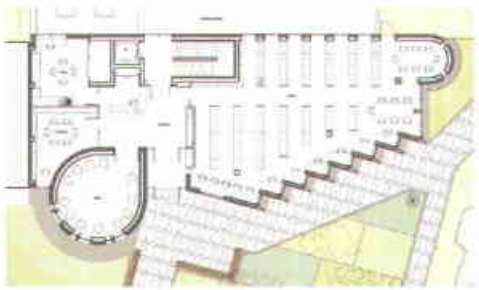
4. Christ's College library, Rick Mather Architects.

Peter Carolin, joint editor of CAg, was one of the architects of the British Library, London

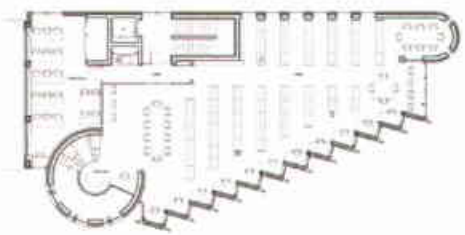
1. The southern end of the library range

2. Ted Cullinan's sketch, Grove Lodge right

3. The 'reader tower' articulates the link between the Lasdun range and the new library



4. Ground floor plan



5. First floor plan

6. Section looking south, with reader tower

7. The reader bays behind the serrated wall

8. Looking up through the reader tower

9. Reader places on the tower landings

10. Site plan – library in red

11. West elevation, Lasdun range at left

12. Second floor reader places

FITZ THE SITE

The completion of Fitzwilliam's new library marks both the completion of the College and the 50th anniversary of its founding. Bobby Open was impressed at the way in which Edward Cullinan Architects' unusual design respects its context.

Cambridge loves round buildings. There is a round church, courthouse, chapel, educational and cultural centre, laboratory, museum, ticket office and public toilet block.* The Faculty of Divinity has two drums – a large one and a small one – as does the Centre for Mathematical Studies. The last two (well, four) were designed by Edward Cullinan Architects, also architects of the new Library and IT Centre at Fitzwilliam College. This new library has a cylindrical "reader tower", configured as a staircase lined with study desks, spiraling up through three storeys *[9]*.

Symbolically, a circular plan might carry a cosmological significance: perfect, infinite, divine. Mathematically, the circle can be seen as a unifying element, encapsulating all regular polygons. The ouroboros gives us the image of a serpent feeding on its own tail, a circular process of devouring and rebirth, a metaphor for hermeticism and reflection, and the pursuit of knowledge. The spiral has been seen as a symbol of dialectical reason; reference might also be made to the double helix, the iconic image of the discovery of the structure of DNA. But does this all seem a little far-fetched? A bit 'Dan Brown'? Can architecture really embody such lofty ideas? Perhaps more importantly, do the results make for a good building?

Certainly it is quite affecting, ascending to the top of the reader tower at Fitzwillliam *[3]*. It could have been anti-climactic, since it doesn't actually go anywhere. But then you notice the tower of the University Library in the distance, across the tops of the buildings and through the trees. You instantly know where you are in relation to the centre of the city. And this is what is striking about the new Fitzwilliam College library: it is a place of discovery. Every study desk *[7 and 12]* gives a unique experience, offering a multitude of different views out to the surrounding buildings and landscape. It makes you see the place anew.

Mediating moves

Next to the library, and the focus of many of its study-niche windows is The Grove, which was the primary residence of Emma Darwin after the death of her husband Charles Darwin. The interior of this Grade II Listed early 19th-century house is exquisite: the wallpaper, the stained and painted leaded glass windows, and the spiral staircase rising through a central cylindrical hallway, top-lit by a circular rooflight... Sound familiar? Indeed, the library's reader tower is also lit by a circular oculus in its roof *[8]*.

Such contextual references abound in the new library: formally and materially. Its plans cleverly mediate between the linear geometry of the adjacent Denys Lasdun wing and the rotated geometry of The Grove *[2]*. Here again, the circular tower helps to act as a hinge around which the plan rotates and fragments, creating an entrance garden to unify the two main geometries.

Looking from Tree Court towards the library, the reader tower plays a similar role in section and elevation, negotiating the change in ground level from the Lasdun residential block to The Grove and library, a rise of around half a storey *[3]*. Lasdun's block expresses its floor levels through exposed concrete slabs, brought to a stop with a new brick wall, in turn separated from the tower with a glazed slot which disguises the new building's floor slabs behind milky glass *[11]*. The stepping of the tower's windows, internally relating to the spiral stair and study desk landings, helps make the transition from the lower Lasdun block to the taller library, whilst also making the four storey tower appear three storey.

In a further mediating move, the main three-storey mass of the library is broken down again and again, on the one hand forming a two storey serrated timber block relating to the height of the Lasdun wing, and on another forming a strong horizontal roof datum to match the roof level of The Grove. Above, the third storey is set back as a continuous glazed strip beneath a second roof canopy *[3]*. These moves create the framework for the variety of study situations inside *[7 and 12]*.

The external European oak cladding *[3]* of the library is intended to complement the pale creamy gault clay brick of The Grove, whilst also making reference to the use of timber elsewhere in the College in internal linings, window frames, staircases, screens and, most notably, the suspended 'ark' of the Chapel.

The College completed

All in all, the building is highly contextual, and yet manages to bring something new to Fitzwilliam College. There are perhaps a couple of niggles: the reader tower spiral only begins internally at first floor level (with a circular reading room below), creating a somewhat disjointed spatial experience inside; and the impressive-looking in-situ concrete surfaces are throughout hidden behind a thin layer of white paint, which feels out of place in the context of the celebration of exposed concrete elsewhere in the College. But the students and staff clearly delight in the building and, looking at the vacated original College library, one can see why: located in the central Lasdun block, these rooms show their age with perforated modular ceiling tiles, plastic service trunking and the like. In comparison, the new library spaces are generous, lofty, light and impeccably serviced: the College finally has a proper library.

It seems fitting that this site – with its original College buildings by Denys Lasdun – should reach its conclusion 50 years later with a building by Edward Cullinan, who began his career in Lasdun's office. Edward Cullinan Architects have completed Fitzwilliam College. Not just the new library and IT centre, but the whole Storey's Way campus. Walking around the site today, the College now feels like a totality, buildings and landscape in balance. All that is missing is a 'Z staircase', but there is no more room. The reader tower is the full stop at the end of a story of challenging and engaging contemporary architecture.

* *Respectively, the Round Church, Crown Court, Fitzwilliam College Chapel, Kaetsu Centre at Murray Edwards College, Mond Laboratory, Scott Polar Research Institute Museum, Botanic Garden Ticket Office, and Parker's Piece public conveniences.*

Architects: Edward Cullinan Architects
Structural Engineers: Brian Cole Associates Ltd
Services Engineers: Kier Building Services
Quantity Surveyor: Edmond Shipway
Contractor: Marriott Construction

Photographs by Simon Fenley

Bobby Open, one of the editors of CAg, practices and teaches in Cambridge

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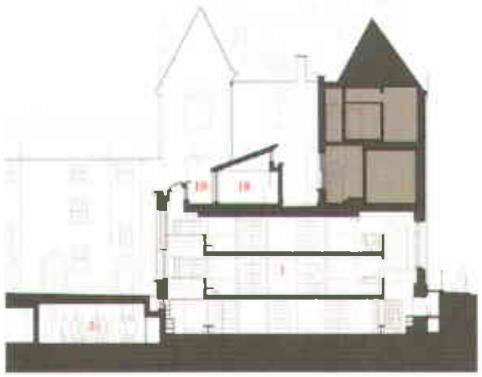
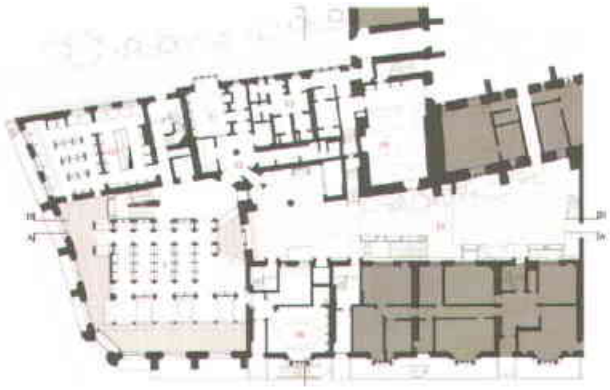
1. Library court and inscribed window

2. Basement level reading area

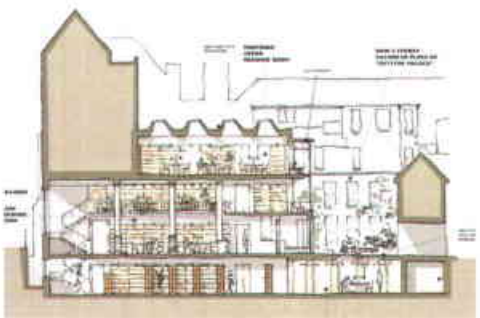
3. The new library sits, like a giant piece of furniture, in the gutted and deepened banking hall



4. Wright and Wright's section and ...



5. ... ground floor plan. Former banking hall lower left corner. A new bar and party room were built below the court



6. Kilburn Nightingale's section and ...

7. ... reading room perspective showing the adaptation of the old banking hall

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LANDSCAPE AND GARDEN DESIGN

COMMERCIAL AND PRIVATE PROJECTS ◆ RHS SILVER-GILT MEDAL 2010, PEOPLE'S CHOICE AWARD FOR BEST SHOW GARDEN

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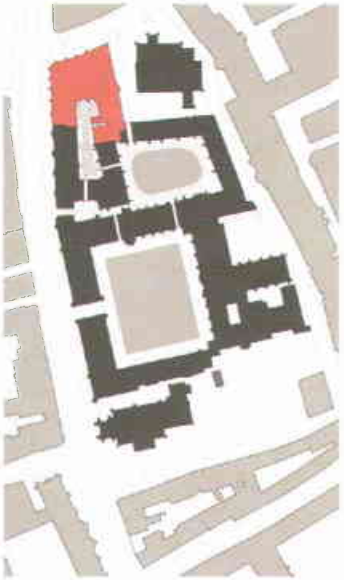

8. Site plan – library area in red

9. Competition clincher: street view...

10. ... appropriated by the Clock

Architects: Wright & Wright
Structural Engineers: Alan Baxter & Associates
Services Engineers: Max Fordham LLP
Quantity Surveyor: Davis Langdon
Contractor: Haymills

Photographs 1 – 3 by Hélène Binet

Oriel Prizeman completed her PhD at Corpus Christi and practices in Cambridge

CORPUS CHOICE

The crowds around the 'Corpus Clock' are unaware of the library behind it. Likewise, the street scene is invisible and inaudible to most of the students within it. Oriel Prizeman reflects on these contradictions and on the competition runners'-up strategy.

Corpus Christi's Taylor Library is an undergraduate library required to provide an environment in which a group of healthy young people in their physical prime are driven to spend the entire month of May percolating text indoors in training for the rest of their lives doing the same. For the majority of the three periods of sunshine they are likely to have witnessed during their stay at university, they are obliged to remain inside, fully resistant to the charms of the riverbank.

For this reason, adequate environmental controls within an undergraduate library have the potential to significantly assist in the production of good results. This observation raises the question of the suitable setting of a library, its views, its adjacencies, its approach. The choice of location for the new Taylor library, in place of a retail bank, at the College's busiest interface with the outside world is therefore somewhat unexpected.

Corpus Christi is one of the smallest Colleges in Cambridge. Broadly, it consists of Old Court, reputedly the oldest and certainly the sootiest court in Cambridge, adjacent to Wilkins' contrastingly waxy New Court. The sombre junction between the two is embellished with unexpected outbursts of art deco optimism; the glamorous Old Combination Room is lined in gold leaf and the Golden Gate, reminiscent of Knightsbridge flats in the time of Agatha Christie, offers a glimpse of an escape onto Trumpington Street.

Although of relatively modest means, the College has miraculously nested upon two great treasures for six and a half centuries; its unparalleled collection of medieval silver, the envy of other larger hoarders and a collection of Anglo-Saxon texts that are the envy of the world. Its emblem is a Christ-like pelican; a somewhat unappetising image featured on its plates that deliver food to every member of the College beneath a depiction of a mother pelican clearly plucking blood from her breast to feed her brood. With the erection of the Taylor Library, however, the college gives the impression that there is now rather more to go around.

A gift from Gown to Town

Library architect, Claire Wright, comments that whereas a building such as the Gherkin tells something of itself to the world, Corpus Christi presented a reclusive face to the outside world. She states that her practice therefore proposed that the college should use the space of the old bank entrance to make a 'gift from gown to town'. She describes the library as set between two artworks; the Corpus Clock facing the street *[10]* and an inscribed window facing the internal court of the College *[1]*, with the books in the centre and the readers by the light.

By excavating to a modest depth, Wright and Wright's competition-winning proposal achieved a three-storey library with eye-catching economy in the space of the old banking hall. The result is an object suggestive of a Millennium Falcon studded with St Jeromes travelling through the old building as a new and alien solid object *[3]*. It is a spatial device that has been tested by Wright and Wright at their Women's library in Whitechapel. The librarian, with a view embedded in the grass of St Bene't's graveyard, has the space most closely connected visually to the outside world.

Wright and Wright's claim that the readers are taken Kahn-like to the light by this spatial device is perhaps misleading. Although the books are at the core, as if on a train, where the rhythm of the windows is not set with the location of the seats, the levels bypass the views set within existing frames. In the basement, the avoidance of contact with the external walls is perpetuated *[2]*. Here, the well tested precedent of readers placed between stacks beneath high level windows as at Trinity College Libraries in Cambridge and notably in Dublin, where the installation electric light was not apparently required until 1968, is not taken up.

This is in contrast to Kilburn and Nightingale's narrowly defeated competition scheme *[6-7]* which proposed to re-use more of the interior space of the banking hall as a reading room and which also retained more of the stable yard behind, using the configuration of furniture as a means for the new use to accommodate itself amongst the features it had inherited from the old. Incorporating the existing space of the banking hall retained a closer and potentially more animated relationship between library and the public realm.

Oblivious to its location

In the new library, readers are offered a highly engineered degree of environmental comfort devised by Max Fordham to deliver fresh but silent air at stimulating rates for study. Picking up on the language of the 1920s, the new library inserts two sleek modernist corners to a newly expanded rear court *[1]*. The walls are faced, not in render, but in solid looking Ketton stone. A set of carefully manipulated ramps leads past the stairs to the basement bar and towards the library. The porch is generously wide and its low soffit, as a result of the economy of levels, successfully subdues the sheltered visitor fumbling for their key card. Inside, the acoustic seal of the windows and their lack of alignment with interior views admirably bolster the sense of a controlled environment oblivious to its location.

The Corpus Clock trumpets ingenuity to a crowd that risk life and limb in an attempt to photograph it outside. Wright and Wright's emphasis on communication is correct. The College that used to hide its jewels now appears to seek the occasion to flaunt them. Most extraordinarily, however, the back of the clock presents library users with a view of a painted panel *[2-3]*, failing even to offer them the opportunity to tell the time. However, it is hard to imagine that a direct eyeballing of passers-by from the library could possibly work and the clock in effect acts as a much smaller version of the bank the College previously leased to the public. Perhaps the strangest choice remains the re-location of the new library on a bustling street corner, forcing it to rely on heavily engineered solutions to minimise aural and visual distraction.

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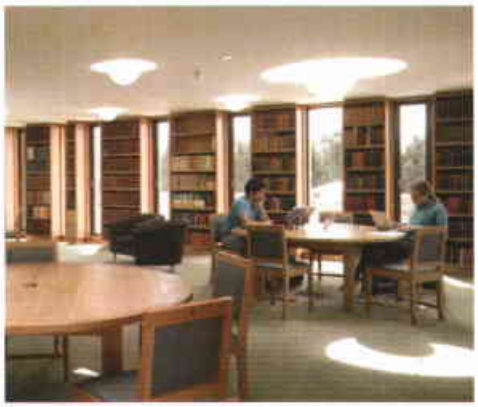
1. Reader spaces behind the fins

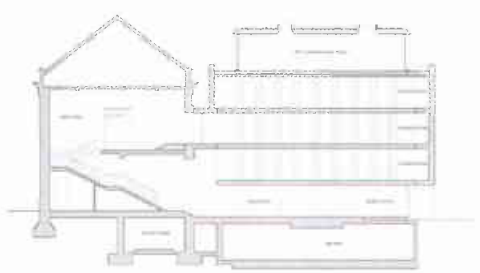


2. New reading room at attic level

3. South-west corner. The library is clad in locally-sourced sweet chestnut boards

4. Approach from College centre

5. The new timber cladding encases a 1970s extension to a 1909 building (top right)



6. Section with 1909 building at left

7. Second floor plan

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8. 1970s extension

9. Timber fins and stained glass

10. West side and ancient wall

EMMA EXTENDS

Faced with the need to accommodate more readers and books and to improve access, Emmanuel College chose to extend its 1970s extension. Architects Kilburn Nightingale suggested a thick re-cladding. Jeremy Lander considers the outcome.

Emmanuel College library is a fascinating example of how a building complex can change and grow organically – like a hermit crab finding a new shell when it needs more space, or like a mollusc that grows by adding layer upon layer.

From 1673 the library was housed in the old chapel which became vacant when Christopher Wren's new chapel was completed. In 1931 it moved to the 1909 lecture-room building designed by Leonard Stokes that overlooks the wonderful lawns and pond at the southern end of the site. The red brick and stone building was converted and extended by one third, almost seamlessly, by Stokes' younger partner George Drysdale. In the early 1970s the library began to outgrow the Stokes building and architects Cruikshank Seward designed an extension attached to the south-west corner *[8]*. It was a singularly drab building with chamfered corners, expressed concrete floor slabs and panels of brick similar to the adjacent 1966 South Court by Tom Hancock, but without any of its charm.

Since then the library has grown and grown (the death of the book having been announced prematurely) and from about 2001 the College began thinking about another extension. It commissioned a number of feasibility studies to establish and test the brief – to provide at least 60 new reader spaces, additional rare book and archive storage, better access for wheelchair users and greater environmental controls as both the rare book collections on the ground floor of the Stokes building and the 1970s building suffered badly from solar gain and lack of insulation.

It's a wrap!

The main thrust of the brief was to re-use the Cruikshank building rather than re-build it. Re-use was seen as a cost-effective and environmentally sustainable approach. Phasing would also be easier as alternative accommodation for book storage would not be needed during construction and, despite its shortcomings, the Cruikshank building was a very efficient book store with low floor to floor heights crammed with shelves. However, lack of reader spaces meant users had to trek back and forth between it and the reading room in the Stokes building, negotiating tricky level changes. Opening up the 1970s building to provide new reader spaces and improving the connection between the two was crucial to any new design.

When a competition was held in 2005 it was won by the London practice of Kilburn and Nightingale (formerly Cullum & Nightingale); they had built relatively few libraries but had the classy red-brick Central School of Speech and Drama library in their portfolio and were working at Corpus Christi on re-housing the world-renowned Parker Library. They convinced the College with a clever refinement of the re-cladding idea, wrapping the 1970s building in a layer thick enough to house the additional reader spaces. They then fitted the remaining additional accommodation neatly between the Stokes building and the ancient wall that marks the historic southern boundary of the College *[5 and 10]*.

The decision to reuse and recycle seems a sensible one but it is interesting to imagine what future generations might make of it. In the past libraries have been moved or entirely rebuilt – why cling on so tightly to the 1970s skeleton? If it saved a little on time and budget how important was this when colleges measure their projects in terms of centuries? It is certainly interesting to contrast the different approaches over the years: 1673 and 1909 – let's move; 1931 – let's make the extension appear exactly the same; 1970s – let's make the extension an appendage; and 2011, let's bond the appendage more closely to the host building yet make it strikingly different by cladding it with timber.

Clever, complex and cosy

Timber is the material of our time and in Emmanuel's new library we have it in abundance, in this case as vertical 'board on board' sweet chestnut, a locally-sourced and sustainable timber which is left untreated *[3]*. The cladding ripples around all of the new envelope, folding into fins on the south and west side (these resemble the spines of books) and between these are vertical windows of stained and etched glass *[9]* providing a contrast to the earthiness of the chestnut and an opportunity to display benefactors' names. They also cleverly steer views away from the nearby bedrooms of South Court and create individual reader spaces which are cosy without feeling claustrophobic *[1]*; you can really imagine finding your favourite space and settling down to work with just the right level of distraction. The wrapping is made to work hard too – services travel up and down within the pochés created by the beautifully detailed oak joinery.

On the top of the Cruikshank building is a new reading room *[2]*. This is an elegant space with round rooflights and wonderful views over the rooftops but externally the opportunity to express it as a true 'attic' storey with different surface treatment was not taken, instead there is more chestnut cladding. This is a pity as the concept of the chestnut as a wrapping loses some of its purity.

The new entrance and reception area is a delightfully rich and complex space with an angled view to the walled garden through an atrium which, with its chestnut brise soleil, forms an environmental buffer to the Stokes building. The 1909 mahogany staircase was reconfigured to lead off the new reception and at first floor, where before there was a tiny glass umbilical link, there is now a wonderfully flowing space with views towards Parker's Piece. A Common Room looks back across a green roof planted with meadow flowers that extends the idea of the garden up through the new building. The refurbished Stokes interior provides a sumptuous foil for the white walls and crisp joinery of the extension but it is interesting, and not surprising, that the 1970s were not thought to be worth celebrating at all, the only sign being a slightly incongruous staircase. As with most transplants the donor organ is vital but invisible.

Architects: Kilburn Nightingale
Structural Engineers: Price and Myers
Services Engineers: Ramboll
Quantity Surveyor: Peter W.Gittins and Associates
Contractor: Killby and Gayford

Photographs by Nick Kane

Jeremy Lander is a partner in Freeland Rees Roberts, architects

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1. Central Library, left, at the Grand Arcade upper level with, beyond right, the Lion Yard atrium

CIVIC DREAMS

Cambridge's long-awaited new Central Library in the Grand Arcade is a popular place. But what does its near invisibility say about our attitude towards public space? John Sergeant muses on parallels and possibilities.

I am in an interesting but rather left-over space. Along one side is the Corn Exchange. In front, an anonymous island building hiding the back of the Guildhall. Along one edge is Fisher House, and opposite is a half-round building beneath a car park ramp: Carluccio's. But what is this high facade of louvres and fire escapes bounding the east? *[3]* It could be a car park or office building, but is not. There is no name, for that is inside, but this is the city's Central Library (run by the County).

Like a retail outlet, this important element of city life has been tacked on to the Lion Yard/Grand Arcade Shopping Centre. It does not even have a presence at ground level, but is reached by escalators or bridges *[1]* via Topshop. It works well enough, there is much user-friendly computerisation, it is courteously staffed and popular, especially with children and internet surfers and it is certainly central. But what does this near-invisible public building say about the right to the free acquisition of knowledge in the 21st century?

We hear that we may be witnessing the passing of the book, the Guttenburg Age. Tablet computers can be seen on any train or plane, and oceans of information are available at the touch of a button. The jury is still out on this issue, but for me the book will survive. As a tactile object it attracts children and introduces a love of reading. For the serious reader you can keep a finger in the footnotes and bibliography. Above all, you can come upon a discovery on the shelves; something analogous but outside your narrow search category, quite different to Amazon's 'people who bought this also bought.' At all events the library must keep a foot in both camps, book and computer. If, that is, government cuts do not sweep it away entirely.

Vestiges of public life

There is an assumption that Google and Wikipedia will provide a virtual replacement for the library. We know that this cannot be on technical grounds: keyword searches make spectacular errors. The lone computer-reader in isolation can never replace the social experience of entering the centre of the city and encountering other citizens. In the 19th century, city centres were made by their great public buildings. Liverpool has an 18th century Town Hall, but also the Picton Library, Walker Art Gallery, and County Sessions House in a magnificent arc around the monumental St. George's Hall. In the United States, New York's 5th Avenue gains decorum from its monumental City Library, just as Boston City Library makes one of the few great urban spaces in north America; to pass time in the reading rooms of either is a memorable privilege.

In Cambridge, King's Parade is in danger of becoming a tourist strip. Chain shops dominate the centre and the small and idiosyncratic struggle to survive; mercifully, the precious Passages provide small premises where such businesses as David's Bookshop and the Cheese Shop hang on. The banks are leaving Peas Hill – HSBC's banking hall annexed by the shop alongside but Barclay's fine hall in Bene't Street set to become a restaurant with student accommodation above. The Arts Theatre is to build a new foyer, sadly disguised within a preserved cottage. The Guildhall and the Market are becoming the last vestiges of public life.

The history of the Central Library is revealing. Formerly part of the Guildhall block, it was wrapped around the sky-lit Reading Room. This fine space then became a tourist information centre when the Library moved to the first Lion Yard. The original site has now been leased to the Jamie Oliver restaurant *[2]*. The courthouse (exported to East Road) is listed and was initially preserved as a kind of Madame Tussaud's, accompanied by a cafe and gift shop. As part of the general loss of civic use public access to Guildhall has reduced: I now buy my parking permit from Mandela House. Only administrators, the Council Chamber and Halls remain. My own last use of the latter was for a clothing sale.

The centre of our cities is being privatised and themed without general awareness. It is a theme well-analysed by Richard Sennet in *The Fall of Public Man*. In his analysis the stranger is now to be feared and silence becomes the mode of encountering public space; it is the home of CCTV cameras. At its most extreme Los Angeles points the way, surely a way to be avoided. No public toilets, so as to keep away drunks (shops will police their own private facilities): curve-topped benches, so that bums cannot sleep on them. Private Malls where you cannot demonstrate. It goes on, up to 'Keep out: Armed Response.' Long may Cambridge be filled with life, buskers, occasional discord.

Continental comparisons

Some years ago the City hosted an event discussing Climate Change at which Al Gore spoke. Here, surely, is an indicator of the sort of use to which Guildhall's large hall could be put. The older University and Colleges constantly host conferences but lack a major meeting space – just as musicians lack a major performance space. Perhaps the City should enter the market – the large hall with its historic organ converted to new use, the small hall acting as its foyer.

Nearby, the Market Place has charm but is run-down and insanitary: the close proximity of fish sales with rubbish compaction is not of our age. Cracked cobbles cannot be cleaned. Architectural ideas are needed *[4]*. A perimeter of open stalls could surround a sunken centre with retail spaces around, even a low-level market hall. All this would be fairly standard on the Continent. A Spanish visitor (for example) is amazed at the cracked, tawdry state of pavements in the centre of Cambridge; heavy lorries can routinely mount the (destroyed) curbs. S/he is used to the magnificent granite of Barcelona, steel of Gerona or tiles of Merida and

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witty, attractive lighting. Rather than near-standard street lights, as on King's Parade, the houses opposite the College would be lit by the low wall, the city's longest lunch bench.

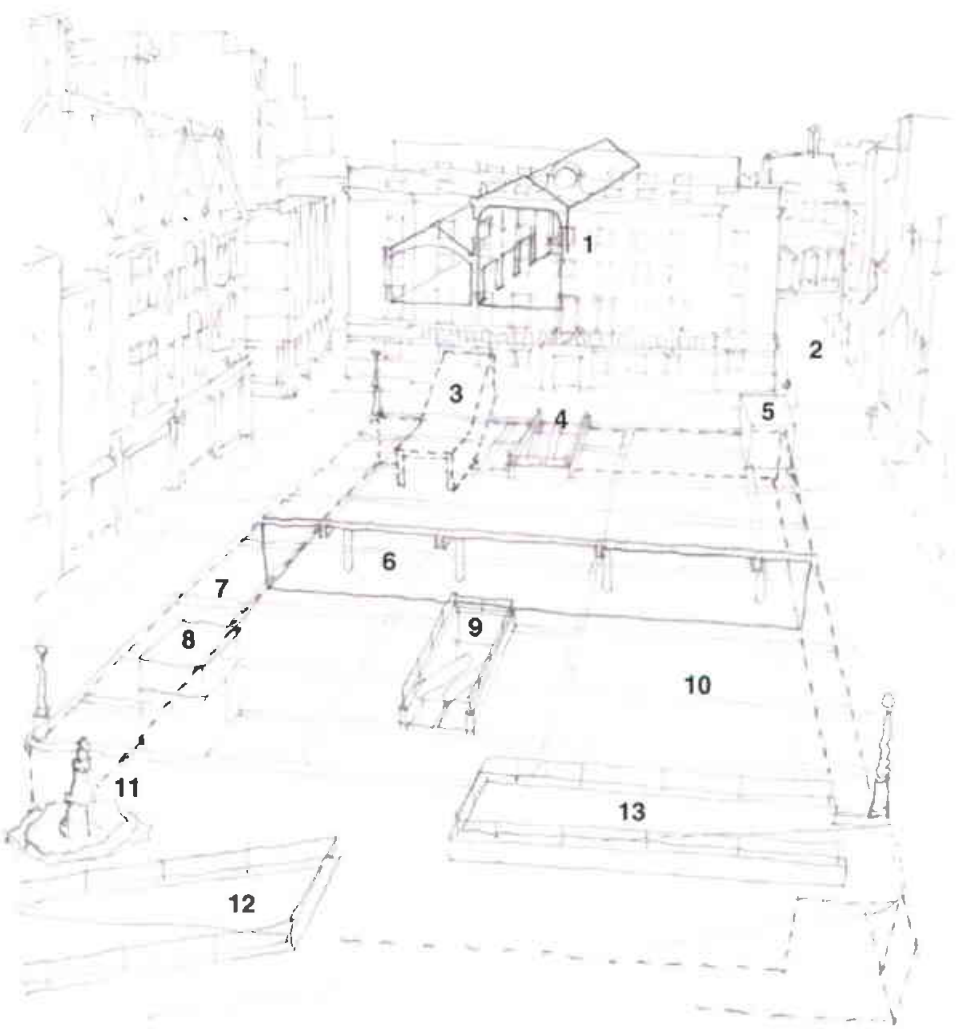
Our visitor is also used to an underground, compressed-air, rubbish-collection system, as in Palma, Mallorca; all the shops and colleges could be served, there would be no more bin-lorries in town. These ideas need not be pipe-dreams, they could be achieved. More fundamentally we need a unitary authority with elected Mayor, again as in Europe. More taxes would ultimately stay here, rather than go to Whitehall. And the absurdity of city streets being the remit of a County Council focused on the viewpoint of say, March or Chatteris, must be consigned to history.

Central Library credits
Architects: Chapman Taylor / Structural Engineers: Jacobs / Services Engineers Faber Maunsell / Quantity Surveyor: Cyril Sweett / Contractor: Verry construction

John Sergeant is an architect living in Cambridge

2. The old Library celebrated its presence. .

3. ... while the new one conceals its existence



1. New City Auditorium created by converting the Guildhall's existing Large Hall into a 625 seat facility and the Small Hall into a Foyer with improved street access
2. Paving continued to Arts Theatre entrance
3. Possible access from lower level to City Auditorium
4. Escalators connecting lower and ground levels
5. Lift and stair access
6. Market area excavated to accommodate a combination of additional trading space, public toilets, traders' facilities and vehicle parking at one or two lower levels. Some of these areas could be lit from above through translucent paving
7. Removable market stalls at ground level over entire market place
8. Lift and stair access
9. Escalators connecting lower and ground levels
10. Square available for multiple activities with servicing
11. Relocated restored fountain
12. Vehicle ramp up
13. Vehicle ramp down

4. View of the market place facing the Guildhall, showing John Sergeant's proposal for one or two below-ground levels and for a new City Auditorium. See The Editors on p.2

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1. Rescued, repaired and restored. The library at night from Fountain Court with, top, the problematic vault.

2. The 'visibly increasing large crack'

ROOF RESCUE

Nearly ten years ago, on the seventh of October 2001, the elegant vault over New Hall's listed library started to collapse. David Emond and Philip Cooper describe how the vault was saved and the library kept in operation.

The library at Newhall is the centrepiece of Chamberlin Powell and Bon's grade 2* design for the College. Sited opposite the dining hall across the sunken water garden in Fountain Court *[1]* the vaulted roof of the library encloses a beautifully day lit interior housing the collection of over 60,000 books.*[4]*

It was somewhat disturbing therefore when the bursar called one of us, the architect, out of a CPD event being held at the College to inform me there was a large crack in the vaulted ceiling which the librarian reported was visibly increasing in length and width as she watched. One of the prestressed tendons clamping the concrete vault together had corroded through causing the tension to be released and the roof to start to collapse.*[2]* Our first action was to evacuate the building and call in the college structural engineer, Philip Cooper of Harris and Sutherland, to help investigate the cause of the problem. Fortunately, the College was in the middle of a major construction project to refurbish its dining hall. The contractor, Bluestone, was able to install emergency back propping inside the building within a few hours.*[7]* It took seven months to assess the problem and to develop a repair strategy to retain and conserve the roof.

An esoteric design

Nothing at Newhall is exactly as it first appears. The traditional appearance of the interior belies the complexity of the structure and the architectural detailing used to achieve a subtle and calm space. A regular grid of concrete columns supports the galleries and an apron roof but does not support the vault above. The undulating precast apron roof cantilevers 3.5 meters out from the unrestrained head of the columns. This feat could only be achieved by pre-stressing the columns. The brick walls rise up from the moat in Fountain Court but do not touch the underside of the apron roof, creating a continuous clerestory. The vaulted roof spans 6m in width and 25m in length, supported only on the end columns forming a continuous slot between the vault and the structures below.*[3]* These structural devices, whilst seemingly perverse, allow natural light to fill the space and successfully moderate the historical references in the form and the plan to create a fine modern interior.

The vault was constructed using ten thin shells of precast concrete placed on a temporary steel truss *[5]* until they were stitched together with high tensile steel cables threaded through sleeves cast into the concrete. The cables were post tensioned to apply 200 tons of compression into the concrete at the base of the vault, which counters the downward pressure from the 62 ton dead load of the concrete itself. Once the cables had been tensioned, the ducts were filled with grout, permanently connecting the cables to the concrete ensuring the composite structure acted as a beam spanning 25 meters. The building was erected in the severe winter of 1963. Water leaked through the roof covering at some point in the following 40 years and entered one section of the duct mid span, corroding the cables. The vault dropped 75mm as the cables stretched and snapped.

Whilst investigations were underway, a temporary roof was constructed over the whole building and a crash deck installed under the vault to allow the library to be used whilst the works were carried out above. In the final engineering solution to the problem, the vaulted roof was carefully jacked up, back to its original line, and a composite structure created using the existing roof components with new carbon-fibre reinforcement across the joints between the precast units and supplementary post-tensioning rods fixed to the outside of the vault. *[6 and 8]* After the carbon-fibre mesh had been applied, the jacks were dropped to 2 mm below the vault which carried its own weight. The new post-tensioning was then carefully applied and the loads on the concrete monitored to ensure it was not crushed. There was relief and much celebration when the roof was successfully repositioned and the temporary propping removed.

A significant challenge – and achievement

In 1960, the desire to use minimal material led to the use of high tensile steel rather than the less

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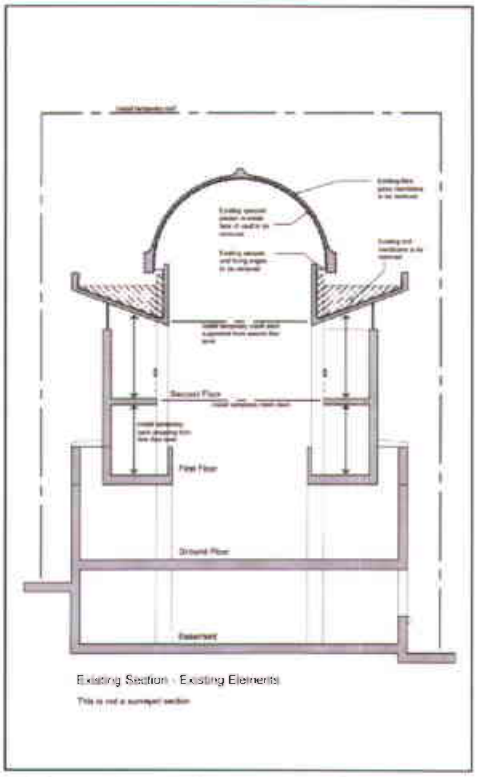
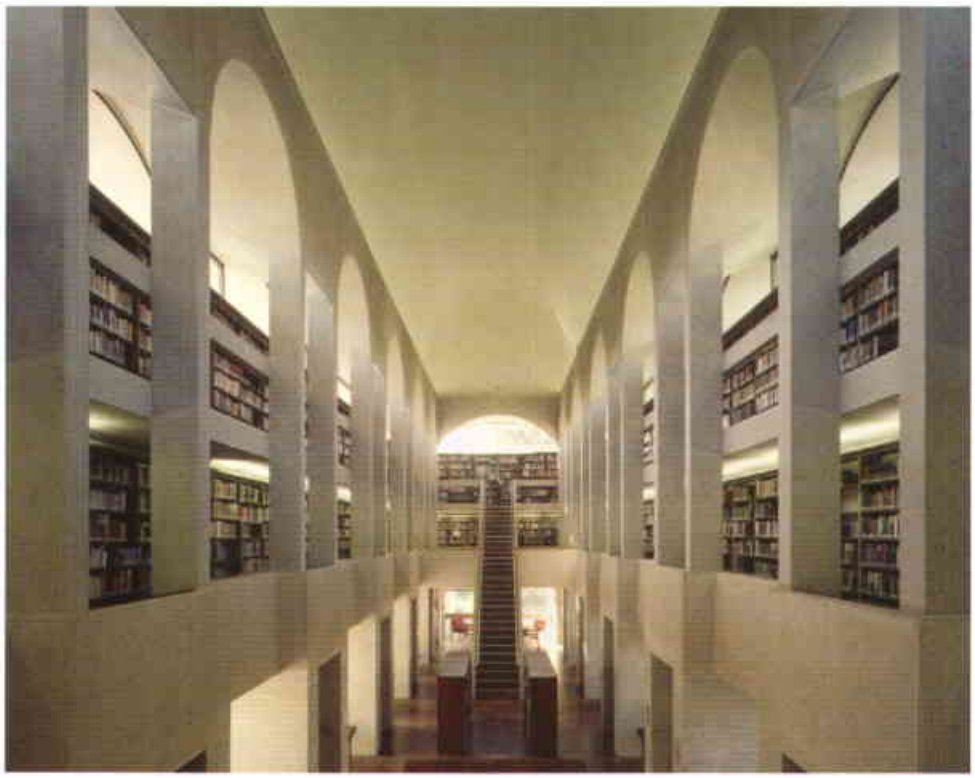


3. Library section showing, top, the vault ...



4. ... which spans, unsupported, from one end of the long internal library space to the other

efficient but more durable stainless steel for the tensioning cables. Innovative engineers of the time realised the difficulty of repairing this type of structure and introduced spare ducts adjacent to the post tensioning cables to allow replacements to be installed. Unfortunately, these advances came after Newhall was complete.

The architectural challenge of the refurbishment was significant. The vault, the new post-tensioning rods and anchors were over-clad with insulation and an epoxy render coat similar in appearance and profile to the original surface. The apron roof was re-formed to new falls with new downpipes to take the water away from rainwater pipes buried within the columns. The external brickwork and concrete was extensively repaired and cleaned. A new acoustic lining was applied to the vault underside, a new fire alarm system was integrated and a new lighting scheme installed.

The works were completed by Bluestone in nine months. The library was closed for four days during the whole process from the initial failure to final repair. The construction cost was £950,000.

Architects: RH Partnership Architects Ltd
Structural Engineers: Harris & Sutherland
Services Engineers: Roger Parker Associates
Lighting engineers: Hoare Lea Lighting
Quantity Surveyors: Davis Langdon
Contractor: Bluestone PLC

Photographs 1 and 4 by Timothy Soar

David Emond is a director of RH Partnership Architects Ltd and Philip Cooper is a director of Cambridge Architectural Research Ltd

5. 1963 construction photo and ...

6. ... 2002 repair. Note cables, centre left

7. Temporary propping kept library in use

8. Supplementary post-tensioning rods

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EIGHT LOOK AT EIGHT CAMBRIDGE LIBRARIES

1570
Trinity Hall

Architect: unknown
Writer: Diane Haigh
(architect and director of Design Council CABE)

Trinity Hall library is one of those rare treasures where the structure exactly reflects the use. The walls are built of Elizabethan brickwork and culminate in its distinguished stepped gable. The span was defined by the timber joists which support the library on the upper floor. A central aisle gives access to seven bays of bookshelves, each lit by a two light window.So little has changed since the 16th century that it conveys exactly the nature of scholarship in this age. Study required commitment – there is no evidence of heating or extra lighting. The bookshelves are topped by high reading desks, to which the books were chained through a rod. Each volume is hugely valuable. This is a repository of precious information, only available to scholars with access to this calm evocative space.

1690
Trinity College

Architect: Christopher Wren
Writer: James W. P. Campbell
(architect and architectural historian)

This is Wren's masterpiece; his most perfect building. The original design had been for a round centralised library. Had it been constructed, it would have been the first round library in the world. The built work is rectangular: more traditional but more subtle. It is full of surprises. First the exterior: the facade to the river is plain, austere and extraordinarily modern. The front to the court is completely different, utterly classical and totally misleading. The trick is discovered when you reach the entrance door at the top of the stairs. You see an enormous room, far longer and far taller than seemed possible from the outside. It is full of books in cases that tower above you. Lifted above them, great walls of glass flood the library with light.

1839
Faculty of Architecture and History of Art

Re-ordered c 1972: Nathan Silver and Alan Penny
Writer: Ranald Lawrence
(research student)

Numbers 1 to 7 Scroope Terrace were built in 1839, and the Architecture School moved there in 1924, twelve years after its establishment. The Library, located at entrance level, occupies what used to be the front rooms and entrance halls of the first five houses in the terrace. The finest of its five linked rooms, the 'Gentleman's Library', or Architecture Room, still features the original Victorian plaster cornices and ceiling roses. The warm polished table and upholstered red leather chairs (which came from the Smirke Reading Room of the British Museum) offer a quiet place of reflective solitude, silently looking out over the bustle of Trumpington Street outside, away from the intruding demands of academic life.

1842
Caius College

Architect: CR Cockerell
Writer: Gavin Stamp
(architectural historian)

This magnificent building housed, in my time as an undergraduate, the history library on its fine ground floor. It had the type of architectural form a library should have: a dominant noble coherent interior space with smaller intimate study spaces opening off. Occasionally, I would venture upstairs to have a peep at the much more magnificent Squire Law Library. Only later did I come to appreciate the genius of Cockerell in creating a sophisticated and eminently practical modern Classical architecture which was not only inspired by Greece and Rome but which absorbed lessons from the Italian Renaissance, Wren, Vanbrugh and Hawksmoor as well as from contemporary French rationalism. Surely the finest work of architecture in Cambridge after King's Chapel.

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Team building.

Had this editorial selection been larger, it would have included the Perne Library at Peterhouse, the Old Library at St John's College, the Pepys Library at Magdalene College, the Wilkins' Room at Corpus Christi College, Newnham College's old library, Jesus College library, the Girton College library and the library at the Centre for Mathematical Sciences. Photographs by Bobby Open.

1934
University Library

Architect: Giles Gilbert Scott
Writer: Nicholas Bullock
(architectural historian)

The route is carefully orchestrated: the approach through Clare Memorial Court framing the Library entrance, the easy sweep through the double height entrance hall, through the catalogue room to the Reading Room door. Inside, the first impression is of the progressive detailing of the grey-green shelving and the veneered readers' tables, but above are the white walls with their textured render, the deep reveals of the windows and a wooden ceiling with painted details. If the combination of artisan craftsmanship, natural materials and machine-made details captures qualities of Modernity shared with buildings from Hilversum, Hamburg, Stockholm and beyond, the axial planning and the symmetry of the whole are a reminder of quite how much Scott still owed to tradition.

1968
History Faculty

Architect: James Stirling
Writer: Nicholas Ray
(architect)

The most controversial building in Cambridge in the second half of the twentieth century was won in a limited competition by James Stirling. It was one thing to use greenhouse technology and industrial references on an engineering building, as he had done at Leicester, with James Gowan, but quite another in a library for historians, and Stirling provoked the ire of Pevsner and others.

For architects, the building demonstrated unparalleled compositional virtuosity: teaching spaces and smaller rooms wrapped around a quarter-panopticon beneath a fully glazed double-skin roof. But historians found it too hot in summer, too cold in winter, noisy and leaky, claiming Stirling was irresponsible in conceiving of a building for the realisation of which effective techniques did not yet exist.

1980
Robinson College

Architects: Gillespie, Kidd and Coia
Writer: John Sergeant
(architect)

The Library occupies the facade to the left of the entrance. It is expressed as a large window in both the castle-like exterior and the court within. It is entered on the middle of three floors, the lowest being cut-down below ground and the highest a large gallery: all are linked by voids, one facing outward, the other inward. The splayed geometry of the plan is cleverly used to differentiate the arrival desk and office, from the stack areas which make up the body of the library. These have a heavily articulated character with equally-spaced reading tables accessed through the stacks; they have side-light and views southwest toward Grange Road. The library is beautifully made in Columbian pine and has a satisfying balance between warren-like personal study dens and open spaces.

1994
Darwin College

Architects: Jeremy Dixon and Edward Jones
Writer: Dean Hawkes
(architect and teacher)

The site, 45m in length and varying in width between 6m and 8m, is pressed between Silver Street and the River Cam. The key to the building is found in its cross section. On the street side the building is low and there are two storeys to the river, where a continuous reading room sits above a sequence of four computer rooms at ground floor. The architects described the interior of the building as, 'one large piece of furniture', with structure, cladding, window frames, floors and bookcases all of oak. Almost twenty years on, in the day of the laptop, the separation of computing and reading is now redundant, but the sun-filled warmth of the oak interior, overlooking the river and Laundress Green is much loved and intensively used by the college's still growing community of scholars.

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Cover: Proposed Christ's College library. The existing Bath Court will be roofed over and used as a café space outside the security barrier of the new library at left. Rick Mather Architects. Cover design by Bobby Open.

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